



# **Depot Maintenance Interservicing (DMI) Analysis Summary Report for Fiscal Year 2003**

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## **FORWARD**

This report is published annually to provide an overview of Depot Maintenance Interservice (DMI) study activity for the preceding fiscal year.

A total of 31 DMI studies were initiated during fiscal year 2003. There were 26 new start system introductions.

A handwritten signature in black ink, appearing to read 'P. D. Carter', with a stylized flourish at the end.

**PAMELA D. CARTER**  
Colonel, USAF  
Director, Joint Depot Maintenance  
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## **OVERVIEW OF THE YEAR**

The 31 Depot Maintenance Interservice (DMI) studies initiated during fiscal year 2003 are shown in Table 1 by the Service submitting the study and by work breakdown structure (WBS). Cumulative DMI submissions since 1978 are shown in Table 2, also by the Service submitting the study and by WBS.

Twenty-six studies were completed in fiscal year 2003.

Table 3 shows, year-by-year since 1978, DMI study introductions (initiations), DMI study decisions (completions) and cost avoidance identified, as well as totals for fiscal years 1978-2003.

**TABLE 1**  
**DMI STUDIES FY03 INTRODUCTIONS**

<b>Equipment</b>		<b><u>USA</u></b>	<b><u>USN</u></b>	<b><u>USAF</u></b>	<b><u>USMC</u></b>	<b><u>Total</u></b>
<b><u>WBS</u></b>	<b><u>Category</u></b>					
100	Aircraft	0	2	21	0	23
200	Missiles	0	1	1	0	2
300	Ships	0	1	0	0	1
400	Combat Vehicles	0	0	0	0	0
500	Automotive	0	0	0	0	0
600	Construction	0	0	0	0	0
700	Electronics & Communications	0	5	0	0	5
800	Ordnance, Weapons & Munitions	0	0	0	0	0
900	General Purpose	0	0	0	0	0
Totals		0	9	22	0	31

**TABLE 2**  
**DMI STUDIES FY78-03 INTRODUCTIONS**

<b>Equipment</b>		<b><u>USA</u></b>	<b><u>USN</u></b>	<b><u>USAF</u></b>	<b><u>USMC</u></b>	<b><u>Total</u></b>
<b><u>WBS</u></b>	<b><u>Category</u></b>					
100	Aircraft	120	293	410	0	823
200	Missiles	41	48	53	1	143
300	Ships	7	116	1	0	124
400	Combat Vehicles	53	3	3	6	65
500	Automotive	13	0	1	7	21
600	Construction	7	0	0	0	7
700	Electronics & Communications	241	98	293	49	681
800	Ordnance, Weapons & Munitions	19	8	2	4	32
900	General Purpose	21	6	8	4	39
Totals		522	572	771	71	1,936

**TABLE 3**  
**DMI STUDIES**  
**FY78-03 INTRODUCTIONS-DECISIONS-POTENTIAL COST AVOIDANCE**  
**(\$MILLIONS PER YEAR)**

	<u><b>FY78</b></u>	<u><b>FY79</b></u>	<u><b>FY80</b></u>	<u><b>FY81</b></u>	<u><b>FY82</b></u>
<b>INTRODUCTIONS</b>	134	55	98	53	62
<b>DECISIONS</b>	14	70	76	60	43
<b>COST AVOIDANCE</b>	2.6	52.6	49.2	34.0	15.0
	<u><b>FY83</b></u>	<u><b>FY84</b></u>	<u><b>FY85</b></u>	<u><b>FY86</b></u>	<u><b>FY87</b></u>
<b>INTRODUCTIONS</b>	224	143	103	87	84
<b>DECISIONS</b>	70	80	70	232	101
<b>COST AVOIDANCE</b>	13.0	24.5	59.4	29.3	35.3
	<u><b>FY88</b></u>	<u><b>FY89</b></u>	<u><b>FY90</b></u>	<u><b>FY91</b></u>	<u><b>FY92</b></u>
<b>INTRODUCTIONS</b>	85	96	74	93	75
<b>DECISIONS</b>	102	107	87	65	83
<b>COST AVOIDANCE</b>	131.3	2.4	48.2	11.0	9.4
	<u><b>FY93</b></u>	<u><b>FY94</b></u>	<u><b>FY95</b></u>	<u><b>FY96</b></u>	<u><b>FY97</b></u>
<b>INTRODUCTIONS</b>	28	45	54	32	25
<b>DECISIONS</b>	62	61	49	54	45
<b>COST AVOIDANCE</b>	29.5	20.2	6.8	18.2	0.4
	<u><b>FY98</b></u>	<u><b>FY99</b></u>	<u><b>FY00</b></u>	<u><b>FY01</b></u>	<u><b>FY02</b></u>
<b>INTRODUCTIONS</b>	25	48	82	37	63
<b>DECISIONS</b>	38	71	85	55	79
<b>COST AVOIDANCE</b>	0	0	0	8.9	1.1
	<u><b>FY03</b></u>				<u><b>TOT</b></u>
<b>INTRODUCTIONS</b>	31				1905
<b>DECISIONS</b>	26				1885
<b>COST-AVOIDANCE</b>	0				592.8

### **JAVELIN Weapon System Command Launch Unit (94-0026)**

The Army introduced the JAVELIN Weapon System Command Launch Unit (CLU) for DMI review. Army and Marine Corps are the only users of the JAVELIN CLU. Army plans for a total procurement of 4,013 systems and Marine Corps plans to field 466 systems. The JAVELIN system is a man-portable, shoulder launched, fire-and-forget medium range anti-tank weapon system. JAVELIN possesses a secondary capability against helicopters and bunkers and is identified to replace the currently fielded DRAGON system over which it has increased range, lethality, and performance. The system is comprised of an expendable round and a reusable fire control unit called the CLU. The CLU is a reusable, lightweight, battery powered, passive day and night sighting device that provides the interface between the JAVELIN missile and the gunner. It is used for battlefield surveillance, target acquisition, missile launch control, and damage assessment. It uses an imaging infrared system to detect targets during poor visibility conditions. Originally, the CLU design consisted of four circuit boards, however, it is now a two-board design. The newer two-board configuration contains Built In Test. Only the two-board units will be deployed, and the 300 four-board units will be used as spares. Also included in this study were the three associated Training Devices for the JAVELIN CLU: Basic Skills Trainer, Field Tactical Student Station, and the Field Tactical Trainer Station. JDMAG conducted a summary recommendation that resulted in assignment of the JAVELIN Weapon System CLU and associated reparable items to the Army for depot maintenance support by a commercial source and a portion of the workload to be performed organically at Letterkenny Army Depot, PA. Further, the JAVELIN CLU Training Devices will be maintained solely by a commercial source. This recommendation resulted in a new interservice relationship between Marine Corps and Army, and any potential cost avoidance that may result will be determined at a later date. The joint Service decision was announced 13 January 2003.

### **P-3C Orion Anti-Surface Warfare Aircraft Improvement Program (AIP) (95-0032)**

DSOR: The P-3C Aircraft Improvement Program (AIP) was assigned to the Navy for depot maintenance by contract based on not finding an existing organic source of repair. No interservicing resulted from this assignment and therefore, no potential cost avoidance will be realized.

### **D-46/ALE-39 Chaff Dispenser (96-0009)**

The Navy introduced the D-46/ALE-39 Chaff Dispenser for DMI study and subsequently requested cancellation based on the system not requiring depot repair. The cancellation was announced 10 June 2003.

### **Integrated Digital Network Exchange (IDNX) (97-0018)**

The Army introduced the Integrated Digital Network Exchange IDNX for a DMI study and subsequently requested cancellation based on the IDNX COTS/NDI system support for the Army being provided by the Defense Information System Agency (DISA) through contracts repair with the OEM for the life of the system and depot support from the Services will never be required. The cancellation was announced 29 May 2003.



### **Joint Helmet Mounted Cueing System (00-0008)**

The Joint Helmet Mounted Cueing System (JHMCS) was introduced by the Air Force for DMI study. The Air Force and Navy jointly developed and use the system. Used on single and two seat tactical fighter aircraft, it will be deployed on the Air Force F-16 C/D with a planned procurement of 600 systems, the Air Force F-15 C/D with 200 – 250 systems, and the Navy F-18 C/D/E/F with 700 – 800 systems planned. It is an ejection-compatible helmet mounted cueing and display system, which, in conjunction with the AIM-9X Sidewinder missile system, provides a high off-boresight capability. During close combat operations, this new lightweight cueing system eliminates the requirement for a pilot to align the aircraft to shoot at a target. JHMCS allows the pilot to simply look at a target to shoot. It is a modified HGU-55/P helmet that incorporates a visor-projected heads-up-display to cue weapons and sensors to the target. The system projects visual targeting and aircraft performance information on the back of the helmet's visor, enabling the pilot to monitor this information without interrupting the field of view through the cockpit canopy. Additionally, the pilot can view any desired aircraft data (airspeed, altitude, target range, etc.) while "heads-up", thus eliminating the need to look into the cockpit during visual air combat. JDMAG conducted a summary study that resulted in an assignment of the JHMCS Electronic Unit and Interface cables to the Air Force at Warner Robins Air Logistics Center, Robins AFB, GA, for depot repair of Air Force and Navy workloads, and the JHMCS Display Unit and Cockpit Unit to the Navy at Naval Surface Warfare Center Crane, IN, for depot maintenance support of Navy and Air Force workloads. This recommendation resulted in new interservice relationships between Air Force and Navy, and any potential cost avoidance that may result will be determined at a later date. The joint Service decision was announced 25 August 2003.

### **Minuteman Minimum Essential Emergency Communications Network Program (000004-02)**

The Air Force introduced the Minuteman Minimum Essential Emergency Communications Network (MEECN) Program (MMP) for DMI study. The MMP is used solely by the Air Force and will be deployed aboard E-4B aircraft. Air Force plans to procure 53 systems. The MEECN is a joint service communications system that provides a secure, jam-resistant receive/transmit link between the National Command Authority and strategic nuclear forces. As the newest link in the MEECN, the MMP integrates an Extremely High Frequency (EHF) and Very Low Frequency (VLF) / Low Frequency (LF) radio communications capability into Minuteman Inter-Continental Ballistic Missile Launch Control Centers (LCC) and provides the LCCs with the ability to receive Emergency Action Messages and send force report-back messages over the Air Force EHF report-back network in both a benign and stressed environment. MMP is a new item that will use existing technology of a commercial nature for development. A summary DMI study resulted in a recommendation to assign the MEECN MMP and associated reparable items to the Air Force for depot maintenance by contractor logistics support except for the LF/VLF items which will remain as previously assigned to the Navy at Space and Naval Warfare Systems Center, San Diego, CA. Also, this system uses three cryptographic items that were studied separately by the 5810 Depot Maintenance Interservice Working Group. Two of the cryptographic items were assigned to the Air Force for contract support and one item was assigned to the Army for contract

support. This recommendation resulted in a new interservice relationship between Air Force and Navy for the LF/VLF items, and any potential cost avoidance that may result will be determined at a later date. The joint Service decision was announced 22 August 2003.

### **B-2 Aircraft Systems and Subsystems**

The Air Force introduced the B-2 Aircraft system and subsystems for DMI study. The Air Force is the sole user of the B-2 aircraft and will have an inventory of 21 aircraft. For study management purposes, the JDMAG initiated several DMI studies to accommodate the various B-2 systems and subsystems. The following nine studies were completed during fiscal year 2003.

#### **B-2 Electrical Navigation System AN/ASN-155 (000006-01)**

A JDMAG summary DMI study recommended the assignment of the B-2 An/ASN-155 Electrical Navigation System components to Ogden Air Logistics Center, Hill AFB, UT. The joint Service decision was announced 10 March 2003.

#### **B-2 Radar Antenna Subsystem Electronically Scanned Array (ESA) (000006-03)**

A JDMAG summary DMI study recommended the assignment of the B-2 Radar Antenna Subsystem (ESA) to the Air Force for repair by commercial contract. The joint Service decision was announced 9 January 2003.

#### **B-2 Radar Antenna Subsystem (AN/APQ-181 (000006-04)**

A JDMAG summary DMI study recommended the assignment of the B-2 AN/APQ-181, Radar Antenna Subsystem to Oklahoma City Air Logistics Center, Tinker AFB, OK, for depot repair. The joint Service decision was announced 10 March 2003.

#### **B-2 Pilot Alert System (000006-05)**

A JDMAG summary DMI study recommended the assignment of the B-2 Pilot Alert System to Oklahoma City Air Logistics Center, Tinker AFB, OK, for depot repair. The joint Service decision was announced 10 March 2003.

#### **B-2 AN/ASC-36 AFSATCOM/MILSTAR Subsystem (000006-06)**

A JDMAG summary DMI study recommended the assignment of the B-2 AN/ASC-36, AFSATCOM.MILSTAR Subsystem to the Air Force for repair by commercial contract. The joint Service decision was announced 10 March 2003.

#### **B-2 Pressure Transducer Unit Subsystem (000006-07)**

A JDMAG summary DMI study recommended the assignment of the B-2 Pressure Transducer Unit Subsystem to Oklahoma City Air Logistics Center, Tinker AFB, OK, for depot repair. The joint Service decision was announced 10 March 2003.

#### **B-2 Defensive Management System (DMS) AN/APR-50 (000006-08)**

A JDMAG summary DMI study recommended the assignment of the B-2 AN/APR-50 Defensive Management System to the Air Force for repair by commercial contract. The joint Service decision was announced 9 January 2003.

#### **B-2 AN/ASN-155/CN1672, Inertial Navigation Subsystem (000006-09)**

A JDMAG summary DMI study recommended the assignment of the B-2 AN/ASN-155/CN1672 Inertial Navigation Subsystem to the Air Force for depot repair by commercial contract. The joint Service decision was announced 10 March 2003.

#### **B-2 Engine Exhaust Subsystem (Tailpipe) (000006-10)**

A JDMAG summary DMI study recommended the assignment of the B-2 Engine Exhaust Subsystem (Tailpipe) to Ogden Air Logistics Center, Hill AFB, UT, for depot repair. The joint Service decision was announced 10 March 2003.

#### **AN/AAQ-28U Precision Attack Targeting System Litening II (01-0001)**

The Air Force introduced the AN/AAQ-28U Precision Attack Targeting System (PATs) Litening II for DMI study. The Air Force uses the system on F-16 Blocks 25/30/32 aircraft in the Air Force Reserve Command and the Air National Guard. Air Force will procure a total of 96 units. Navy also uses the pod and will deploy it aboard the AV-8B Harrier aircraft for Marine Corps use and plans a procurement of 56 units. The PATs Litening II is an advanced airborne infrared targeting and navigation pod. It was designed to improve both day and night attack capabilities, and Litening II presents pilots with real-time, Forward Looking Infrared Receiver and Charged-Coupled Device imagery. The pod is a self-contained, self-cooled, multisensor, laser designator system for target detection/recognition and weapons delivery during the day, night and under adverse weather conditions. It is mechanically, electrically, and aerodynamically compatible with all F-16 aircraft avionics subsystems. The Navy configuration will employ a video recorder. A JDMAG summary study recommended the Air Force depot maintenance workload for the AN/AAQ-28U PATs Litening II and associated DLRs be assigned to the Air Force for support by a commercial source. For the Navy workload, JDMAG recommended the AN/AAQ-28U and Video Recorder be assigned to the Navy for support at Naval Air Depot, Jacksonville, FL. The joint Service decision was announced 17 January 2003.

#### **AN/ASQ-228 (V), Advanced Targeting Forward Looking Infrared (ATFLIR) (01-0014)**

The AN/ASQ-228 (V), Advanced Targeting Forward Look Infrared provides real-time passive thermal and visible imagery during day or night/adverse weather conditions to aid in scenarios which include low level high speed night flying, target acquisition and attack. The system will detect, designate and aid the pilot in the classification of both air-to-air and air-to-surface targets. A JDMAG summary DMI study recommended the AN/ASQ-228 (V) be assigned to the Navy for repair at Naval Air Depot, Jacksonville, FL. The joint Service decision was announced 19 September 2003.

#### **CP1899/AYQ-13B Warfare Management Computer System (02-0021)**

The Warfare Management Computer System is a component of the Open Systems Core Avionics Requirement (OSCAR). A JDMAG summary DMI study recommended that the CP1899/AYQ-13B be assigned to Naval Air Depot, North Island, CA. The joint Service decision was announced 17 January 2003.

#### **AN/ASD-12 (XN-1) Shared Reconnaissance POD (SHARP) (02-0029)**

The AN/ASD-12 (V) Shared Reconnaissance POD is a podded airborne tactical reconnaissance system that when installed on the centerline station and operated from F/A-18D or F model aircraft, provides multi-mode image acquisition, storage, cockpit display, edit and real/near real-time data link. It is designed to be easily adaptable to other aircraft well and is fully compatible with carrier operations. A JDMAG summary DMI study recommended the assignment of the AN/ASD-12 (V) to the Navy for depot repair at Naval Air Depot, Jacksonville, FL, except for one component, NSN 6130-01-480-8598, which will remain assigned to Ogden Air Logistics Center, Hill AFB, UT. The joint Service decision was announced 12 September 2003

#### **J69 Jet Engine (02-0030)**

The Service MISMOs completed a review of the J69 Jet Engine and recommended assignment to Naval Underwater Warfare Center, Keyport, WA, for organic depot maintenance. The joint Service decision was announced 22 October 2002.

#### **C/KC135 Fuel Savings Advisory System (FSAS) (03-0001)**

The Air Force introduced the C/KC135 Fuel Savings Advisory System (FSAS) for a DMI study and subsequent Depot Source of Repair (DSOR) assignment. The FSAF provides the primary control and data processing to enable operator control of the fuel system and display the center of gravity. The Fuel Management Advisory Computer (FMAC) sub-assembly uses aircraft data and flight crew flight plans inputs to compute continuous in-flight advisory information to manage fuel consumption. The Integrated Fuel Management Panel (IFMP) sub-assembly provides the flight crew with the controls, indicators and annunciators to monitor and control fuel quantity and distribution. The Air Force is the only user of the FSAS and plans to acquire 588 systems for use on C/KC-135 Aircraft. The Air Force conducted Core analysis and determined the KC-135 FSAS to be a core

candidate. The JDMAG conducted a summary DMI study based on 75 percent of the C/KC-135 FSAS being supported by a dual source of repair with 75 percent organically supported and 25 percent contractor supported and recommended organic support at Ogden Air Logistics Center, Hill AFB, UT, and commercial contract support at the original equipment manufacturer (OEM), BAE Systems, Inc. The joint Service decision was announced 3 July 2003.

#### **Pacific Air Forces (PACAF) HH-60G Pavehawk Helicopter (03-0002)**

An Air Force Source of Repair Assignment Process (SORAP) determined to transition the repair of PACAF HH-60G Helicopters from Corpus Christi Army Depot, TX, to the commercial source in Korea. A Service MISMO review recommended the repair of PACAF HH-60G Helicopters by Korean Airlines, Kimhae, Republic of Korea, a commercial source. The joint Service decision was announced 10 March 2003.

#### **F118-GE-100 Front Frame Assembly (03-0003)**

The F118-GE-100 Front Frame Assembly funnels air to the F-118-GE-100 engine and directs it into the fan by the fan inlet guide vane flaps which control airflow and air intake angle. The air is then fed to the first stage fan. A JDMAG summary DMI study recommended the assignment of the F118-GE-100 Front Frame Assembly to the Air Force for depot repair by commercial contract. The joint Service decision was announced 9 May 2003.

#### **WCU-2A/B Guided Missile Control Section (03-0005)**

The Navy introduced the WCU-2A/B Guided Missile Control Section for a DMI study and subsequent Depot Source of Repair (DSOR) assignment. The WCU-2/B Guided Missile Control Section is an upgrade for some AGM-88C Harm Missiles. Once upgraded the missiles will be identified as AGM-88D. The WCU-2A/B Guided Missile Control Section incorporates a GPS receiver subassembly, an Inertial Measurement Unit, and a GPS antenna. It also contains a navigation processor to process all navigation solutions and to determine the missile's trajectory. The WCU-2/B Control Section also provides captive and free flight electrical power for the missile. This section also houses the wing sockets, actuators, the ground support equipment test connector, and the Target Detection Device (TDD). An external elapsed time indicator located next to the umbilical connector tracks the time that phase C power has been applied to the guidance section. The TDD provides fusing options. The Navy is the only user of the WCU-2/B Guided Missile Control Section and plans to acquire 1,000 systems for use on AGM-88D Harm Missiles. Naval Systems Command conducted Core analysis and determined development of a Core capability is not required for the WCU-2/B Guided Missile Control Section. The JDMAG conducted a summary DMI study based on the WCU-2/B Guided Missile Control Section being contract supported and recommended assignment of the WCU-2/B Guided Missile Control Section to the Navy for support by a commercial source. This recommendation is based on the Navy being the sole user of the system and not finding an existing organic depot source of repair for the other components. The joint Service decision was announced 29 May 2003.

### **TF33 Engine Fuel Manifold (03-0008)**

The Air Force introduced the TF33 Engine Fuel Manifold for a DMI study and subsequent Depot Source of Repair (DSOR) assignment. The TF33 Engine Fuel Manifold meters fuel through various primary and secondary nozzles to support combustion in the TF33 series engines. The fuel manifold forms a half circle consisting of 4 clusters each consisting of 24 fuel nozzle bodies connected by primary and secondary tubes, one tube inside the other and brazed together using nickel gold braze material. The turbine is connected to the nozzle cluster using floating and fixed tees and is brazed using nickel gold materials. The Air Force uses 2,989 TF33 Engine Fuel Manifolds on the B-52H, KC-135E, C-141, EC/RC/C-135, E-3A/B and E-8C aircraft. An organic depot repair capability does not exist within DoD depots and the field has no back up capability. The Air Force conducted Core analysis of the TF33 Engine Fuel Manifolds and determined a potential 10 USC 2466 violation is posed since the workload is a candidate to satisfy a core capability. The technology to repair the fuel manifolds for internal leakage, damaged tubes, and other damage requiring disassembly and nickel gold brazing has not been available and is more difficult than new manufacturing. The technical data, including the 27 each gold ring drawings used in the nickel gold braze process, are not available and the government does not have the information used in new manufacture. The JDMAG conducted a summary DMI study based on the TF33 Engine Fuel Manifold being contractor supported and recommended assignment to Oklahoma City Air Logistics Center, Tinker AFB, OK, for contract support. Due to insufficient technical data and not finding an existing organic depot source of repair for the components. The joint Service decision was announced 8 August 2003.

### **A/A24G-51, Attitude Heading Reference System (03-0016)**

The A/A24G-51 Attitude Heading Reference System utilizes a fiber optic gyro and a three axis magnetic azimuth detector to provide aircraft attitude (pitch and roll) and heading reference information to the cockpit instrumentation for pilot use. A JDMAG summary study recommended assignment of the A/24G-51 to the Navy for repair at Naval Air Depot, North Island, CA. The joint Service decision was announced 19 September 2003.